

Abstract Submitted
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Triblock Janus Spheres QIAN CHEN, SUNG CHUL BAE, STEVE GRANICK, University of Illinois at Urbana Champaign — We show that spheres that attract one another on two polar regions but repel at the middle band (“triblock Janus”) assemble into nontrivial reticulated networks. We have constructed such spheres and have visualized their aqueous assembly dynamics on the single-particle level. The building blocks are simple micron-sized colloidal spheres whose interactions (electrostatic repulsion in the middle, hydrophobic attraction at the poles) are likewise simple, but their self-assembly into this open structure contrasts with previously-known close-packed periodic arrangements of spheres. This strategy of “convergent” self-assembly from facilely fabricated colloidal building blocks encodes the target supracolloidal architecture not in localized attractive spots but rather in large redundantly attractive regions of the building blocks. The idea extends to designing other supracolloidal networks.

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